

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
14 April 2005 (14.04.2005)

PCT

(10) International Publication Number
WO 2005/032583 A2

(51) International Patent Classification⁷: **A61K 39/095**,
39/102, 39/09

(21) International Application Number:
PCT/IB2004/003373

(22) International Filing Date: 4 October 2004 (04.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0323102.4 2 October 2003 (02.10.2003) GB
0412052.3 28 May 2004 (28.05.2004) GB

(71) Applicant (for all designated States except US): **CHIRON SRL** [IT/IT]; Via Fiorentina 1, I-53100 Siena (IT).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **CONTORNI, Mario** [IT/IT]; Chiron SRL, Via Fiorentina 1, I-53100 Siena (IT).

(74) Agents: **MARSHALL, Cameron, John et al.**; Carpmaels & Ransford, 43-45 Bloomsbury Square, London WC1A 2RA (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **LIQUID VACCINES FOR MULTIPLE MENINGOCOCCAL SEROGROUPS**

(57) Abstract: Conjugated capsular saccharides from meningococcal serogroups C, W135 and Y are safe and immunogenic in humans when combined in a single dose. This effect is retained when a conjugated capsular saccharide from serogroup A is added. These conjugated antigens can be stably combined in a single aqueous dose without the need for lyophilisation. Broad protection against serogroup B infection can be achieved by using a small number of defined polypeptide antigens. These polypeptide antigens can be combined with the saccharide antigens without loss of protective efficacy for any of the five serogroups. Efficacy is retained even if a Hib conjugate is added. The efficacy of a serogroup W135 conjugate is enhanced by addition of protein antigens derived from a serogroup B strain. Addition of a Hib conjugate to meningococcal conjugates enhances the overall activity against meningococcus serogroup W135.

WO 2005/032583 A2